being unpatentable over Shang in view of U.S. Patent No. 5,534,069 to Kuwabara et al. (Kuwabara). Applicants traverse these rejections for at least the following reasons.

I. Claim 23 Is Patentable Over Bhatnagar

Claims 23-26, 30, 36, 37, 39, and 40 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Bhatnagar. The Action states at page 2 that:

> The apparatus of Bhatnagar is capable of being connected to any processing gas or supplier. It would have been obvious to connect the gas source recited in claim 23 to Bhatnagar's apparatus because the type of gas to be used depends on the treatment to be performed and Bhatnagar's apparatus is not limited structurally by the type of treatment gas. (emphasis added).

Applicants note that this rejection appears under the heading "Claim Rejections - 35 USC § 103." Additionally, the Action admits that *Bhatnagar* does not contain the recited gas source, stating "It would be obvious to connect the gas source recited in claim 23 to *Bhatnagar's* apparatus." Accordingly, Applicants assume that the rejection over *Bhatnagar* is a 103 rejection, and address it as such. Applicants respectfully traverse this rejection.

To establish a prima facie case of obviousness, the prior art reference or references when combined must teach or suggest *all* the recitations of the claim, and there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. M.P.E.P. § 2143. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. M.P.E.P. § 2143.01, citing *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990). To support combining references, evidence of a suggestion, teaching, or motivation to combine must be **clear and particular**, and this requirement for clear and particular evidence is not met by broad and conclusory statements about the teachings of references. *In re Dembiczak*, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999) (emphasis added). The Court of Appeals for the Federal Circuit has also stated that, to support combining or modifying references, there must be **particular** evidence from the prior art as to the reason the skilled artisan, with no knowledge of the claimed invention, **would have selected these components for combination in the manner claimed**. *In re Kotzab*, 55 U.S.P.Q.2d 1313, 1317 (Fed. Cir. 2000) (emphasis added). Respectfully, as will be discussed below, the

Official Action fails to meet the requirements for a showing of obviousness under § 103.

Applicants respectfully submit that it would not be obvious in view of the disclosure of Bhatnagar to provide an apparatus that comprises "an oxygen radical or plasma annealing unit comprising a gas source selected from the group consisting of O_2, NH_3, Ar, N_2, and N_2O" as recited in Claim 23. As admitted by the Action, Bhatnagar does not disclose an apparatus that comprises an oxygen radical or plasma annealing unit comprising a gas source selected from the group consisting of O_2, NH_3, Ar, N_2, and N_2O as recited in Claim 23. In fact, Bhatnagar proposes the use of gas sources that are completely different from those recited in Claim 23. At column 8, lines 32 to 33, Bhatnagar states that "[h]alogenated gases or vapors, such as CF_4, ClF_3, F_2, and NF_3 may be used as a process gas." Accordingly, Bhatnagar does not teach or suggest all of the recitations of Claim 23.

Furthermore, there is no motivation to modify Bhatnagar to provide the recited invention. As admitted by the Action, "the type of gas to be used depends on the treatment to be performed." Bhatnagar proposes, at column 3, lines 40-45, that:

> A microwave plasma generating system may be incorporated with a CVD system to provide a plasma that is used to efficiently clean a processing chamber of the CVD system, for example. Plasma from the microwave-plasma generating system may also be used for etching, layer deposition, or other processes." (emphasis added).

Thus, Bhatnagar proposes cleaning, etching, and deposition treatments. Applicants respectfully submit that, in view of these proposed treatments and the admission by the Action that the type of gas to be used depends on the treatment to be performed, it would not be obvious to modify the apparatus of Bhatnagar to provide an apparatus comprising an oxygen radical or plasma annealing unit comprising a gas source selected from the group consisting of O_2, NH_3, Ar, N_2, and N_2O as recited in Claim 23. Moreover, Bhatnagar's statement at column 3, lines 44-45 that "Plasma from the microwave-plasma generating system may also be used for . . . other processes" does not support modification of Bhatnagar as asserted in the Action because this statement fails to proved provide particular evidence as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected a gas source selected from the group consisting of O_2, NH_3, Ar, N_2, and N_2O as recited in Claim 23. For at least the foregoing reasons, Applicants respectfully submit that Claim 23 is patentable over Bhatnagar and request that this rejection be withdrawn.

II. Claim 45 Is Patentable Over Shang in view of Kuwabara

Claims 27-29, 45, and 51-66 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,055,927 to Shang et al. in view of U.S. Patent No. 5,534,069 to Kuwabara et al. The Action states, "The rejection as stated in the previous Office Action, paper no. 6, paragraph 6, stands. The newly added claims 51-66 basically are related to intended use of the claimed apparatus but they fail to define the claimed invention structurally over that of the prior art." Applicants respectfully traverse this rejection.

The Action has failed to provide any reason for rejecting Claim 45. Claim 45 was added during the response to previous Office Action, paper no. 6, and was, thus, not subject to rejections in that Office Action. Moreover, no reason was given in the present Office Action for rejecting Claim 45. Applicants respectfully submit that Claim 45 is patentable over the cited references and request that the Examiner so indicate or, in the alternative, provide clear and particular support for combining the cited references to arrive at the claimed invention. *See* M.P.E.P. § 706.02(j), which sets forth the explanation required in an Office Action to support a rejection under 35 U.S.C. § 103.

Turning now to Claim 51, Applicants respectfully submit that Shang and Kuwabara, either separately or in combination, neither disclose nor suggest an apparatus for forming a thin film on a substrate that comprises a means for oxygen radical or plasma annealing a dielectric layer as recited in Claim 51. Shang proposes an apparatus that includes a remote plasma source cleaning system. The cleaning gas supply system **69** includes a source of a precursor gas **44**. In the described embodiment, the precursor gas is NF_3. (Col. 5, line 50). At column 6, lines 31-33, Shang states that "the reactive gas used for cleaning may be selected from a wide range of options, including the commonly used halogen and halogen compounds." In view of the disclosure of Shang, which focuses on the use of plasma cleaning gases, such as halogenated gases, Applicants respectfully submit that it would not be obvious to provide an apparatus for forming a thin film on a substrate where the apparatus comprises a means for oxygen radical or plasma annealing a dielectric layer as recited in Claim 51. Furthermore, Applicants respectfully submit that Kuwabara fails to disclose or suggest an apparatus for forming a thin film on a substrate where the apparatus comprises a

means for oxygen radical or plasma annealing a dielectric layer to make-up for the shortcomings of Shang. Accordingly, Applicants respectfully submit that Claim 51 is patentable over the cited references.

For at least the foregoing reasons, Applicants respectfully request that these rejections be withdrawn.

III. The Dependent Claims Are Separately Patentable Over the Cited References

While the dependent claims 24, 25, 27-35, 46-50, and 52-66 are patentable over the cited references by virtue of their dependence from patentable independent claims 23, 45, and 51, Applicants respectfully submit that many dependent claims are separately patentable over the cited references for at least the reasons stated in Applicants' response to the previous Office Action, paper no. 6.

IV. Conclusion

The concerns of the Examiner addressed in full, Applicants respectfully request withdrawal of all rejections and the issuance of a Notice of Allowance forthwith. Alternatively, Applicant respectfully requests entry of this Amendment as narrowing the issues for further consideration. The Examiner is encouraged to direct any questions regarding the foregoing amendments and/or remarks to the undersigned, who may be reached at (919) 854-1400.

Respectfully submitted,

J. Michael Strickland
Registration No. 47,115

20792
PATENT TRADEMARK OFFICE

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: BOX AF, Commissioner for Patents, Washington, DC 20231, on June 7, 2002

Monica L. Croom